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PROGRAMA DE PÓS-GRADUAÇÃO EM CIÊNCIAS DA SAÚDE

DISSERTAÇÃO DE MESTRADO

THALITA GOMES DOS ANJOS

FATORES ASSOCIADOS AO CONSUMO ABUSIVO DE BEBIDAS ALCOÓLICAS EM VÍTIMAS DE SUICÍDIO

BRASÍLIA, DF

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Dissertação de mestrado apresentada ao Programa de Pós-Graduação em Ciências da Saúde, Universidade de Brasília, como requisito parcial para obtenção do título de Mestre em Ciências da saúde.

Área de concentração: Saúde Coletiva
Orientador: Prof. Dr. Maurício Gomes Pereira
Coorientadora: Ana Claudia Morais Godoy Figueiredo

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Área de concentração: Saúde Coletiva

Brasília, 29 de novembro de 2021.

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BRASÍLIA, DF
2021

Dedico este trabalho aos meus pais e esposo, que me incentivaram e foram apoio em todos os momentos.

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RESUMO

Introdução: O suicídio é um fenômeno mundial, além de um desafio para a saúde pública, e o consumo abusivo de bebidas alcoólicas é um dos fatores de risco mais importantes. No entanto, a associação entre possíveis fatores relacionados ao consumo de bebidas alcoólicas em vítimas de suicídio raramente têm sido investigada.

Objetivo: Avaliar os fatores associados ao consumo abusivo de bebidas alcoólicas entre pessoas que morreram por suicídio no Distrito Federal (DF).

Método: Estudo transversal de base populacional com vítimas de suicídio no DF entre 2016 e 2017. Foram coletadas informações sobre características sociodemográficas, avaliação de autópsia e uso de drogas. Uma equipe treinada avaliou todos os casos para definir os fatores associados ao consumo abusivo de bebidas alcoólicas. Este resultado foi medido usando a concentração de álcool no sangue. A análise de regressão de Poisson foi aplicada para calcular as razões de prevalência e respectivos intervalos de confiança populacional.

Resultados: Os achados do presente estudo foram coletados em um banco de dados contendo informações relacionadas a 278 vítimas de suicídio. Ser do sexo masculino e ter cocaína identificada no teste toxicológico foram os fatores que mostraram forte associação com o consumo abusivo de bebidas alcoólicas em vítimas de suicídio. Outros fatores apresentaram ligeira associação (RP <1,5): ter escolaridade com mais de 8 anos de estudo, ser negro, exercer atividade profissional ou ser aposentado ou pensionista e ter presença de cannabis no teste toxicológico.

Conclusão: Fatores socioeconômicos demográficos e comportamentais mostraram-se positivamente associados ao consumo abusivo de bebidas alcoólicas entre as vítimas de suicídio, sugerindo a necessidade de medidas eficazes de políticas públicas de saúde para o enfrentamento desse agravo.

Descritores: Suicídio; Consumo de álcool; Teor de álcool no sangue; Epidemiologia

ABSTRACT

Background: Suicide is a worldwide phenomenon, as well as a challenge for public health, and alcoholic beverage abuse is one of the most important risk factors. However, the association between possible factors related to alcoholic beverage consumption in suicide victims has rarely been investigated.

Objective: To evaluate the factors associated with abusive alcoholic beverage consumption among people who died from suicide in the Brazilian Federal District (BFD).

Method: A population-based and cross-sectional study with suicide victims in the BFD between 2016 and 2017. Information was collected about sociodemographic characteristics, autopsy appraisal, and drug use. A trained team evaluated all cases to define factors associated with abusive alcoholic beverage consumption. This outcome was measured using the Blood Alcohol Concentration. Poisson regression analysis was applied to calculate the Prevalence Ratios and respective populational confidence intervals.

Results: The findings of the present study were collected from a database containing information related to 278 suicide victims. Being male and having cocaine identified in the toxicological test were the factors that showed a strong association with abusive alcohol beverage consumption in suicide victims. Other factors showed a slight association (PR <1.5): having an education level with greater than 8 years of study, being black, having a professional occupation or being retired or pensioner, and having the presence of cannabis in the toxicological test.

Conclusion: Socioeconomic-demographic and behavioral factors proved to be positively associated with abusive alcoholic beverage consumption among suicide victims, suggesting the need for effective public health policy measures to combat this health problem.

Keywords: Suicide; Alcohol Drinking; Blood Alcohol Content; Epidemiology

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SUMÁRIO

1 APRESENTAÇÃO

O suicídio é definido por Durkheim em sua obra, Le suicide(DURKHEIM, 1897; 2000), como uma ação que resulte em morte, ação essa praticada pela própria vítima, que possui conhecimento do resultado a ser produzido. Esse agravo não é de natureza recente, porém essa temática vem obtendo atenção devido ao aumento de ocorrências em todo o mundo, aumento de 60% nos últimos 45 anos(GONÇALVES; GONÇALVES; OLIVEIRA JÚNIOR, 2011). A Organização Mundial de Saúde (OMS) define o suicídio como um importante problema de saúde pública, por ser uma das dez causas de morte mais frequente em diversos países.

Mundialmente, a taxa de mortalidade por suicídio em 2016 foi 10,5 por 100 mil pessoas (OMS, 2016). Nos países de baixa e média renda ocorreram a maioria dos suicídios (79%). Porém, os países de alta renda possuem as maiores taxas de mortalidade por suicídio (11,5/100.000). A faixa etária com maior frequência é a de jovens, 15-29 anos, classificando-se como a segunda maior causa de morte entre essa população. O métodos mais comuns para a pratica do ato é enforcamento, seguido por envenenamento de pesticidas e armas de fogo(BRASIL, 2019). A maior frequência dos casos abarca a população do sexo masculino(VÄRNIK, 2012).

Em 2020 estimou-se que 1,53 milhões de pessoas morreram por suicídio. Os impactos econômicos desse evento geram grandes custos para a sociedade(SGOBIN, 2013). O valor médio por internação de lesões autoprovocadas intencionalmente é de 507 reais e a média de permanência na internação expressa uma média de 4 dias (CERQUEIRA; CARVALHO; LOBÃO; RODRIGUES, 2007). As perdas de capital humano com suicídio custam em média 163 mil reais por vítima. O óbito por suicídio impacta em, ao menos, 5 pessoas próximas a vítima, causando prejuízos emocionais, sociais e econômicos (GONÇALVES; GONÇALVES; OLIVEIRA JÚNIOR, 2011).

Sabe-se que transtornos mentais possuem relação com o suicídio, principalmente a depressão. Aliado a isso, existe o consumo de drogas, a exemplo da bebida alcoólica. Essa droga é utilizada tanto como gatilho para o ato, como encorajador, destruindo as relações sociais do indivíduo levando ao

autoextermínio (SGOBIN, 2013; SORATTO, 2019). Estudo realizado em Santa Catarina apontou que aproximadamente um terço das vítimas de suicídio acusaram alcoolemia positiva (SORATTO, 2019). Isso confirma o impacto dessa droga para o suicídio.

1.1 Histórico sobre suicídio

Durkheim, determina que o suicídio não é um ato que depende exclusivamente de fatores pessoais, abrangendo também o campo social. Informa que não há indícios de hereditariedade, ou seja, que não é transmitido de pai para filho, mas que pode ocorrer ambientes favoráveis para que o desenvolva. Há relação positiva entre o aumento de taxas de suicídio e envelhecimento, devido a aflições econômicas, desemprego, isolamento social e perda de entes queridos. Há influência de fatores sociais para episódios suicidas, tais como: família, escola, religião e grupos sociais. No entanto, esses também podem são considerados fatores de proteção para evitar episódios suicidas (DURKHEIM, 1897).

O direito penal é regido por alguns princípios e um deles, denominado princípio da alteridade ou exteriorização do fato que diz que condutas somente podem ser criminalizadas quando produzem ou passam a produzir lesões a bens jurídicos alheios. Por tanto, são considerados irrelevantes penais os comportamentos que prejudicam exclusivamente bens jurídicos próprios (NUNES, 2016).

A partir desse princípio que se baseou a criação do artigo 122 do código penal brasileiro que define como crime "induzir ou instigar alguém a suicidar-se ou a praticar automutilação ou prestar-lhe auxílio material para que o faça". Por tanto, não é considerando como ato criminoso quem exterminar a própria vida por ato próprio, não classificando como crime condutas de autoflagelação, autolesão, uso de drogas e suicídio.

No Brasil o consumo de álcool e droga não são considerados crimes, por não produzirem efeitos a terceiros, mas é relevante quando são estímulos para efetivação de um dano. Muito se discute sobre a legalização de drogas a tendência mundial é promover controles sociais rígidos por meio de leis e restrições de uso do álcool e fumo. Já para drogas como a maconha nenhum país adota a legalização aberta,

alguns aderem a penas leves e maior tolerância com usuários. No que tange drogas como a cocaína e heroína a tendência mundial é a proibição (LARANJEIRA, 2010)

Em estudo publicado em 2013 por Martins, estimou-se que 20% dos homens fazem uso abusivo de álcool e mulheres 10%. Para a dependência do álcool 10% homens e 5% mulheres. E relacionou o álcool com 50% de homicídios e óbitos em acidentes automobilísticos e 25% dos suicídios (MARTINS, 2013).

1.2 Políticas públicas

Em 2015, a Nação Unidade (ONU) publicou a agenda 2030, uma declaração para o desenvolvimento sustentável assinada por diversos países, dividida em 17 Objetivos de desenvolvimento Sustentável (ODS). Nela consta metas e objetivos para serem alcançadas até 2030, e uma delas é reduzir em um terço a mortalidade prematura por doenças não transmissíveis via prevenção e tratamento, e promover a saúde mental e o bem-estar, utilizando o indicador de mortalidade por suicídio como meio para avaliar e acompanhar essa meta (BRASIL, 2021).

Para se adequar as diretrizes pactuadas o Ministério da Saúde (MS) publicou a Agenda de Ações Estratégicas para a Vigilância e Prevenção do Suicídio e Promoção da Saúde no Brasil, com ações a serem aplicadas entre 2017 a 2020, com o objetivo de reduzir as tentativas e mortes por suicídio, dando ênfase na vigilância e na qualidade das informações (BRASIL, 2017).

No Distrito federal, em 2012, foi publicada a portaria nº 184/2012, aprovando o Plano Distrital de Prevenção ao Suicídio. Em 2013, publicam outra portaria nº 311/2013 instituindo um grupo de trabalho para elaboração do plano distrital coordenado pela diretoria de saúde mental da secretaria de saúde do DF. O Plano Distrital em a finalidade de definir princípios, diretrizes e ações para prevenção de tentativas e de suicídios a serem inserida no distrito federal, abrangendo diversos setores além da saúde.

Essa temática vem sendo inserida em diversas políticas e diretrizes de promoção, prevenção e protocolos de saúde com ampla discussão mundial. Pode ser observado que o impacto de um ato suicida não fica somente na vítima do acometimento, transcende além da vítima, impacta seu núcleo familiar e a sociedade.

No âmbito familiar dificulta a reestruturação dos sobreviventes, com uma mudança abrupta na dinâmica familiar, podem ter impactos patológicos e novos casos de suicídio. Socialmente ainda é visto como uma realidade longínqua, interferindo para um bom funcionamento de ações preventivas. (GONÇALVES; NETO; RIOS; SOUZA *et al.*, 2018).

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2. OBJETIVO

- Avaliar os fatores associados ao consumo abusivo de bebidas alcoólicas entre pessoas que morreram por suicídio no Distrito Federal (DF).

3. ARTICLE: ASSOCIATED FACTORS TO ABUSIVE ALCOHOLIC BEVERAGE CONSUMPTION IN SUICIDE VICTIMS

3.1 INTRODUCTION

The World Health Organization (WHO) has indicated which somebody dies every 40 seconds due to suicide somewhere in the world (WHO, 2019). It is a relevant public health issue since it is a global problem. In 2016, suicide was the second-highest cause of global death among young people aged 15 to 29 (Brasil, 2017). Worldwide, about 800 thousand people commit suicide every year, with 79% of cases occurring in low and middle-income countries. The suicide rate per 100.000 inhabitants in Brazil in 2016 was 6.1, approximately, half that of North America (13.7) (WHO, 2019).

In Brazil, the suicide mortality rate was 5.8 for every 100 thousand inhabitants in 2016 (Brasil, 2020). In the Federal District (DF), for the same year, this indicator was 5.1 deaths / 100 thousand inhabitants(Distrito Federal et al., 2016, 2015). Between 2005 and 2014, suicide deaths in the Federal District increased by 20% (Gomes, 2017). The cost to health in Brazil, with hospital admissions and deaths by suicide, was over R$ 35 million in the period between 1998 and 2007 (Silveira et al., 2012). Suicide deaths produce irreversible economic and social impacts for both people and the State (Gomes, 2017).

Unfavorable health, social, and financial conditions can potentiate suicidal ideation (Arafat et al., 2018). Resources that increase the feeling of well-being and pleasure are used by victims of suicide, such as the consumption of alcoholic beverages (Arafat et al., 2018; Kõlves et al., 2017). When these substances are ingested, the neurotransmitter that regulates the mood of individuals, known as serotonin, produces an effect of happiness, encouragement, and disinhibition in people (Kõlves et al., 2017). In light of this situation, those who intend to commit suicide to find a way to carry out self-extermination through the consumption of alcoholic beverages (Kõlves et al., 2017).

Some studies have shown which a large part of the people who die due to suicide used some legal or illegal drug in the moments that preceded the execution of the act (Arias et al., 2016; Castellanos et al., 2016; Cheng and McBride, 2013; Kõlves et al., 2017; Wiener et al., 2017). Usually, benzodiazepine, cannabis, and cocaine are

consumed by the victims (Arias et al., 2016; Castellanos et al., 2016; Conner et al., 2017).

Deaths by suicide related to the abusive use of alcoholic beverages and other substances is a frequent event (Conner et al., 2017; Lee et al., 2017; Park et al., 2017). However, there is a lack of previous studies on the topic in the Federal District, and the costs for family members and society are high (Loureiro et al., 2010). The objective of this research was to evaluate the factors associated with alcoholic beverage consumption among people who died by suicide in the Brazilian Federal District.

3.2 MATERIAL AND METHODS

3.2.1 Study design and population

A population-based, observational, cross-sectional study with an analytical aspect was performed at the Department of Health of the Federal District. The State has 31 administrative regions (Distrito Federal, 2018) with an extension of 5760.8 km² (Brasil, 2020). In 2019, the population was composed of 3,015,268 inhabitants (BRASIL and IBGE, n.d.), and the total number of deaths was 15,416 (Brasil, 2020). For the same year, the Gross Domestic Product corresponded to 3.7% (Distrito Federal, 2019), and the Human Development Index was 0.824 (Brasil, 2019). The research was approved by the Health Sciences Teaching and Research Foundation Ethics Committee and the Brazilian Laws of Ethical Aspects 466/2012 and 580/2018.

3.2.2 Eligibility criteria

3.2.2.1 Inclusion criteria

All people who died between January 1, 2016 and December 31, 2017, whose basic cause of final death was defined as suicide and whose information was recorded in the Mortality Information System of the National Health Service Data System (DATASUS).

3.2.2.2 Exclusion criteria

Inconclusive suicide cases, as well as those that did not present a specific dosage of drugs, were excluded from the present study.

3.2.3 Data collection tools

Information about death was collected from the following sources: 1) The Mortality Information System; 2) The Notifiable Health Events Information System; 3) Death certificates; 4) Death investigation forms from the Department of Health Information and Situation Analysis. The information recorded in the latter instrument was obtained from the reports issued by the Legal Medicine Institute of the Federal District Civil Police.

3.2.4 Outcome variable - Abusive use of alcoholic beverages

The outcome was the abusive use of alcoholic beverages measured using the Blood Alcohol Concentration (BAC). It was defined as positive when the cut-off point was ≥ 0.5 g per liter, while the dosage below 0.5 g / l was negative (Dubowski, 1980). A toxicological examination was performed in the period between 6 to 12 hours after death through laboratory analyzes with 50 ml of blood collected from the cardiac cavities (atria) of the suicide victims (Modelli et al., 2008). The outcome was divided in two groups according to BAC: group positive - BAC ≥ 0.5 g / l, and group negative - BAC < 0.5 g / l.

3.2.5 Independent variables

The following variables were analyzed: **1) Sociodemographic:** age (years) and WHO criteria (WHO et al., 2013); sex (female or male); black race (yes or no); marital status (single or married/common-law or widowed/ separated/divorced); schooling level (<8 or ≥ 8 years of study); employment status (retired / pensioner, employed, unemployed and student). **2) Information about the suicide victims:** the place of death (hospital, health center, residence, public road, and others); medical assistance (yes or no); previous suicide attempt (yes or no). 3) **Autopsy appraisal:** toxicological reports (yes or no) to assess, according to laboratory analysis, the presence of cocaine, cannabis, benzodiazepine, opioid, amphetamine, barbituric,

antidepressants, poison (herbicide or/and insecticide), BAC level (<0.5 g / l or 0.5 to 1.5 g / l or 1.51 to 2.5 g / l or ≥ 2.51 g / l) (Dubowski, 1980); Alcohol and other drugs (none, alcohol, alcohol and other drugs); suicide method (poisonings, drowning, falls, firearm, explosives, hanging, motor vehicle, blunt object, sharp instrument, and others).

3.2.6 Data collection procedures

The information was collected from the Department of Health of the Federal District. A trained team, composed of health professionals from the Department of Health of the Federal District, performed the evaluation of all records of the Legal Medicine Institute and of the Federal District Civil Police in order to understand the characteristics related to suicide. Firstly, all death certificates registered in the Mortality Information System as suicide or inconclusive cases were screened by researchers. Then, a standardized form was filled out by two independent appraisers with the information provided in the reports. After, the team defined the cause of death. In addition, the Mortality Information System and The Notifiable Health Events Information System databases were compared in order to validate information on the support of suicide victims in the health service. Subsequently, coding was performed according to the criteria of the International Classification of Diseases (ICD), version 10 (WHO, 2010).

3.2.7 Procedure for analyzing the data

Central tendency measurements (mean, median, standard deviation, minimum, and maximum) were used for continuous information. Descriptive analysis was conducted for all categorical variables according to the percentage and absolute number. Then, Poisson Robust regression (Kotz and Johnson, 1992) was applied to measure the factors associated with BAC positive in suicide victims by means of the Prevalence Ratio (PR), crude and adjusted, together with the respective population confidence intervals (PCI) for finite population size(Kass, 2011). In view of the epidemiological importance of the age and sex variables in the topic of study, they were considered to be a confounder and included in all adjusted models. The statistical

analysis was processed using STATA® (STATA, 2017), version 15, serial number: 401506208261, and shown in tables.

4 RESULTS

The findings of the present study were collected from a database containing information related to 278 suicide victims. The loss rate was 3.2%, and the missing data rate for the variables was 2%. Thus, 269 individuals were evaluated for BAC. The average age was 38.4 years (standard deviation (SD): ± 15.5 years), the median of 36 years, with a minimum value of 13 years and a maximum of 99 years.

Young adults, men, black people, individuals without a partner, with an education level greater than 8 years of study, and employees had a higher relative frequency of suicide in 2016 and 2017 (Table 1). It was observed that the majority of deaths occurred at home and through hanging (Table 2). Also, it was possible to identify a low percentage of previous suicide attempt notifications.

In relation to the BAC level, the average was 1.2g /l (SD: ± 0.8 g /l), the median of 0.9 g/l, minimum of 0.5 g/l and maximum of 4.0 g/l. A little less than 1/3 of the individuals tested positive for blood alcohol concentration (Table 3), and more than half of these had a BAC of 0.5 to 1.5 g / l (Table 2). Drugs were present in at least 1/5 of the toxic tests performed, with greater frequencies for alcohol (27.7%), cocaine (14.0%), benzodiazepine (10.1%), and cannabis (9.4 %) (Table 3).

Regarding the factors associated with alcohol consumption in suicide victims (Table 4), in the evaluation of the crude model, the variables investigated were, in large part, positively associated. In the adjusted models, both for age (model 1) and for age and sex (model 2), the variables maintained the association with alcohol abuse, with a slight decrease in magnitude, especially in the model adjusted for age and sex.

Being male and having cocaine identified in the toxicological test were the factors that showed a strong association with abusive alcoholic beverage consumption in suicide victims. Thus, men were approximately 3 times more likely to abuse alcohol among suicide victims (PRadjusted[1]: 2.91; PCI: 1.61-5.22). Having the presence of cocaine in the toxicological examination of suicide victims was found to be approximately 2 times more frequent among people who consumed alcoholic beverage in excess (PRadjusted[2]: 1.89; PCI: 1.40-2.53).

Other factors were also slightly associated with alcohol abuse among suicide victims, such as: having an education level with greater than 8 years of study (PRadjusted[2]: 1.34; PCI: 1.01-1.78), being black (PRadjusted[2]: 1.25; PCI: 0.93-1.67), having a professional occupation or being retired or pensioner (PRadjusted[2]: 1.53; PCI: 0.93-2.52) and having the presence of cannabis in the toxicological test (PRadjusted[2]: 1.30; PCI: 0.85 -2.00).

Table 1 - Number (n) and percentage (%) of the sociodemographic characteristics related to suicide victims, Federal District, 2016-2017 (n=278)

Variable	N	%
Age		
Young (13-24)	61	21.9
Young Adults (25-44)	134	48.2
Adults (45-59)	56	20.1
Elderly (≥ 60)	27	9.8
Sex		
Female	56	20.1
Male	222	79.9
Black Race[*]		
Yes	160	57.8
No	117	42.2
Marital status[*]		
Single	172	62.3
Married/common-law	74	26.8
Widowed/ separated/divorced	30	10.9
Schooling level[*]		
< 8 years of study	109	40.1
≥ 8 years of study	163	59.9
Employment status[*]		
Retired/Pensioner	18	6.5
Employed	180	65.5
Unemployed	33	12.0
Student	44	16.0

*There were deficits in the information

Table 2 - Number (n) and percentage (%) of the information about the place of death, medical assistance, drug used, previous suicide attempts and method, related to suicide victims, Federal District, 2016-2017 (n=278)

Variable	N	%

Place of death[*]		
Hospital	10	3.6
Health center	1	0.4
Residence	185	66.8
Public road	36	13.0
Others	45	16.2
Medical assistance		
Yes	11	4.0
No	267	96.0
Previous suicide attempts		
Yes	16	5.8
No	262	94.2
BAC level (g/l)		
< 0.5	192	71.4
0.5 to 1.5	53	19.7
1.51 to 2.5	20	7.4
≥2.51	4	1.5
Alcohol and other drugs[*]		
None	192	71.4
Alcohol only	33	12.3
Alcohol and other drugs	44	16.3
Suicide method		
Poisonings	17	6.1
Drowning	2	0.7
Falls	29	10.4
Firearm	26	9.4
Explosives	1	0.4
Hanging	188	67.6
Motor vehicle	9	3.2
Blunt object	3	1.1
Sharp instrument	2	0.7
Other	1	0.4

*There were deficits in the information

Table 3 - Number (n) and percentage (%) of the drug used by suicide victims evaluated using the toxicological exam, Federal District, 2016-2017 (n=278)

Drug	N	%
Alcohol	77	27.7
Antidepressants	5	1.8
Amphetamine	12	4.3
Barbituric	3	1.1
Benzodiazepine	28	10.1
Cocaine	39	14.0
Cannabis	26	9.4
Opioid	3	1.1

Poison (herbicide or/and insecticide)	2	0.7			

Table 4 – Number (n) and percentage (%), Prevalence Ratio (PR), and Population Confidence Intervals (PCI) of the association between sociodemographic and drugs-used characteristics with abusive alcoholic beverage consumption related to suicide victims, Federal District, 2016-2017 (n=269).

	Abusive alcoholic beverage consumption				
Variable	**BAC Positive n (%)**	**BAC Negative n (%)**	**PR crude (PCI)**	**PR adjusted[1]** (PCI)	**PR adjusted[2]** (PCI)
Age					
Young (13-24)	14 (22.9)	47(77.1)	1.00	-	-
Young Adults (25-44)	45 (34.9)	84 (65.1)	1.52 (1.03-2.25)	-	-
Adults (45-59)	12 (23.1)	40 (76.9)	1,00 (0.60-1.68)	-	-
Elderly (≥ 60)	6 (22.2)	21 (77. 8)	0.97 (0.51-1.84)	-	-
Sex					
Female	6 (11.1)	48 (88.9)	1.00	1.00	-
Male	71 (33.0)	144 (67.0)	2.97 (1.65-5.36)	2.91 (1.61-5.22)	-
Black race					
Yes	47 (30.9)	105 (69.1)	1.24 (0.92-1.66)	1.22 (0.90-1.65)	1.25 (0.93-1.67)
No	29 (25.0)	87 (75.0)	1.00	1.00	1.00
Marital status*					
Married/common-law	19 (26.0)	54 (74.0)	1.00	1.00	1.00
Single	49 (29.3)	118 (70.7)	1.13 (0.80-1.56)	1.11 (0.76-1.61)	1.07 (0.73-1.57)
Widowed/ separated/divorced	8 (28.6)	20 (71.4)	1.10 (0.64-1.87)	1.14 (0.67-1.93)	1.25 (0.75-2.10)
Schooling level*					
≥ 8 years of study	38 (23.7)	122 (76.3)	1.46 (1.09-1.95)	1.47 (1.10-1.96)	1.34 (1.01-1.78)
< 8 years of study	36 (34.6)	68 (65.4)	1.00	1.00	
Employment status*					
Employed/ Retired/Pensioner	62 (32.5)	129 (67.5)	1.78 (1.21-2.64)	1.93 (1.18-3.18)	1.53 (0.93-2.52)
Unemployed / Student	14 (18.2)	63 (81.8)	1.00	1.00	
Cannabis					

Yes	10 (38.5)	16 (61.5)	1.38 (0.93-2.07)	1.44 (0.96-2.17)	1.30 (0.85-2.00)
No	67 (27.7)	175 (72.3)	1.00	1.00	
Cocaine					
Yes	21 (53.8)	18 (46.2)	2.21 (1.67-2.93)	2.05 (1.52-2.76)	1.89 (1.40-2.53)
No	56 (24.3)	174 (75.7)	1.00	1.00	
Benzodiazepine					
Yes	8 (28.6)	20 (71.4)	0.99 (0.62-1.59)	0.96 (0.60-1.53)	1.06 (0.66-1.69)
No	69 (28.6)	172 (71.4)	1.00	1.00	

* There were deficits in the information
** Model 1: adjusted by age
*** Model 2: adjusted by age and sex

5 DISCUSSION

The main findings of the investigation showed which there are factors positively associated with alcohol abuse among suicide victims: being male, having the presence of cocaine in the toxicological test, having a professional occupation or being retired or pensioner, having greater than 8 years of study, showing the presence of cannabis in the toxicological examination and being black, in decreasing order of strength of association.

Other findings showed that the prevalence of positive blood alcohol levels among the victims was considered to be moderate (Boenisch et al., 2010; Holmgren and Jones, 2010; Kõlves et al., 2017). The alcoholic strength most frequently identified in the toxicological examination, according to the Stages of Acute Alcoholic Influence / Intoxication classification, was at the levels of euphoria and excitement (Dubowski, 1980).

The harmful use of alcoholic beverages can cause mood changes, which provide transient feelings of pleasure and, consequently, reduce the clinical signs and symptoms of depression (Darvishi et al., 2015). On the other hand, toxic levels of alcoholic drink motivate immediate, inconsequential attitudes that reflect in a temporary state of unhappiness (Watts, 2008). The results of recent systematic reviews have shown that the consumption of low levels of alcohol can increase the risk of suicide attempts by up to 2.7 times and that individuals who abuse alcohol when compared to those who do not, had an increase in suicide risk of up to 74% (Darvishi et al., 2015).

The abusive consumption of alcoholic beverages is considered socially more "acceptable" in the young and among adult men (Silva et al., 2019). These population groups exercise behaviors based on normative beliefs, aimed at extolling power and strengthening actions that reaffirm masculinity when carrying out different daily activities and, consequently, may more often present attitudes considered to be a health risk. Excessive consumption of psychoactive substances immediately before suicide, such as alcoholic beverages, can potentiate impulsive actions and violent acts, with the application of more effective methods for the consummation of suicide among male individuals. The present study confirmed the findings in previous research on this topic (Lee et al., 2017; Ribeiro et al., 2016).

Results contrary to those of the present research were obtained in 2015, in Korean women who had higher rates of suicide due to the fact that they use high lethality methods when compared to men (Park et al., 2017). Furthermore, women are more likely to have alcohol intoxication before suicide when compared to men (Lee et al., 2017).

As for the positive association between the use of cocaine and the abusive consumption of alcoholic beverages in suicide victims, similar results have been found (Abdalla et al., 2019; Conner et al., 2017) and also with a strong association measure. Furthermore, the authors stated that the combined use of alcohol and cocaine increases the risk of suicidal behavior. The consumption of other psychoactive substances, such as antidepressants, cannabis, and cocaine (Watts, 2008), can be stimulated by emotional disorders, the need for new experiences, and the context in which individuals find themselves. Other investigations found a positive association between the use of antidepressants and / or cannabis with the consumption of alcohol in an abusive way (Castellanos et al., 2016; Park et al., 2017), corroborating the findings of the present study.

The plausibility for this relationship is justified by the fact that cocaine can potentiate the effects of alcohol in the body and encourage suicide since alcohol is commonly used to relieve depressive symptoms, and cocaine can induce agitation in the individual who intends to commit suicide (Conner et al., 2017). The biological mechanism is based on the metabolism of cocaine in the presence of ethanol, resulting

in the substance cocaethylene, which causes the euphoric State of the victims (Landry, 1992; McCance-Katz et al., 1998).

The findings of the present investigation on the positive association between the variables, level of education, black race, and professional occupation, and the harmful consumption of alcoholic beverages in suicide victims have been confirmed by the results of other investigations on the topic. On the other hand, more investigations are needed since there is little research on the topic and diverge from studies on predictors for the use of drugs in suicide victims (Arias et al., 2016; Wiener et al., 2017). In contrast, some studies from Brazil, the United States of America, and Australia showed different results in relation to the variables evaluated in this research. For example, in the United States, white people are more likely to use drugs before committing suicide when compared to non-white people, a different result from the present study. While in Australia, it was observed that married and unemployed people made up the risk group for alcohol consumption before suicide (Caetano et al., 2015; Castellanos et al., 2016; Kõlves et al., 2017).

Descriptive results also showed that the victims of suicide were predominantly male, single, aged between 25 and 44 years old and black, confirming other investigations on the subject (Arafat et al., 2018; Castellanos et al., 2016; Conner et al., 2017; Darvishi et al., 2015; Gomes, 2017; Kõlves et al., 2017; Lee et al., 2017; Park et al., 2017; Wiener et al., 2017). In Brazil, the disease indicators mentioned above are similar to those in the Federal District (Brasil, 2017); although the occurrence of suicide attempts in women is higher, men had higher mortality rates (Brasil, 2017). Suicide attempts were assessed using The Notifiable Health Events Information System. In this system, health services notify those who have attempted suicide. Many cases may not have been registered by the health service, with underreporting in the system, which justifies a low percentage. This shows the importance of these findings, as they demonstrate that health professionals still need to understand the importance of compulsory notification in the fight against suicide.

Due to the importance of the topic under investigation and its findings, some limitations need to be described. Information bias is one of them, since the data records may have been flawed, insufficient, or inconclusive in relation to the circumstantial factors of the event, such as the definition of acute or chronic use of alcohol by the

victim. In addition, underreporting of deaths by suicide may have occurred, making it impossible to actively search for cases potentially eligible to be included in the study. Therefore, deaths with ill-defined or inconclusive basic causes were reviewed in order to classify them as suicide, according to criteria described in the method.

As for the strengths of this investigation, the survey of primary data by a team trained to evaluate the reports of people who died because of suicide should be highlighted. A standardized form was used by two independent researchers in order to reduce possible selection and measurement biases. It is also noteworthy that all suicide cases for this population-based study that occurred in the Federal District between 2016 and 2017 were included and that the losses did not impact the results. The data of the present research were representative of the population of the Federal District, as all suicide victims' residents of the State were included. Then, the population confidence interval was estimated in order to verify the accuracy of the association measures (Kass, 2011). In an attempt to minimize the possibility of confounding bias, a multiple data analysis was performed with the use of the sex and age variable as confounding in all adjusted models.

Due to the fact that suicide is an irreversible act, sociodemographic factors precede death and, consequently, guarantee the temporality of these events in the relationship between exposure and outcome (abusive alcoholic beverage consumption) in the present cross-sectional study. In addition, in relation to the definition of abusive alcoholic beverages consumption, blood samples were collected by coroners, and the examinations were performed within 12 hours after death. This fact favored the reduction of possible false-positive results regarding the use of drugs since rigorous techniques were used for laboratory analysis.

Reducing the suicide mortality rate is one of the objectives of Sustainable Development (Brasil, 2017). Among the themes for strategic suicide prevention actions are the improvement in the quality of notification of suicide attempts and the adequate registration of deaths motivated by this disease (Brasil, 2017). The findings of this research can help in decision-making concerning investments in public health policies aimed at combating suicide, consumption of legal and illegal drugs, as well as carrying out continuing education practices for health professionals to support individuals prone to this type of health problem so as to prevent suicidal ideation among this group in the

Federal District. Finally, as no previous study on the topic was identified, further studies on the topic are encouraged in order to assess the causal aspects of alcohol consumption in suicide victims.

6 CONCLUSION

Socioeconomic-demographic and behavioral factors were positively associated with alcohol abuse among suicide victims. The results of this research call attention to an important public health problem that links the use of legal and illegal drugs with suicide. Effective public health policy measures are necessary to combat this health problem.

7 CONFLICTS OF INTEREST

There are no conflicts of interest.

8 FINANCIAL SUPPORT

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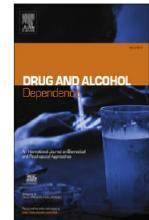
10   ANEXO 1 – ARTIGO PUBLICADO

Associated factors to abusive alcoholic beverage consumption in suicide victims

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